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Montana's High School Dropouts
Examining the Fiscal Consequences

September 2010

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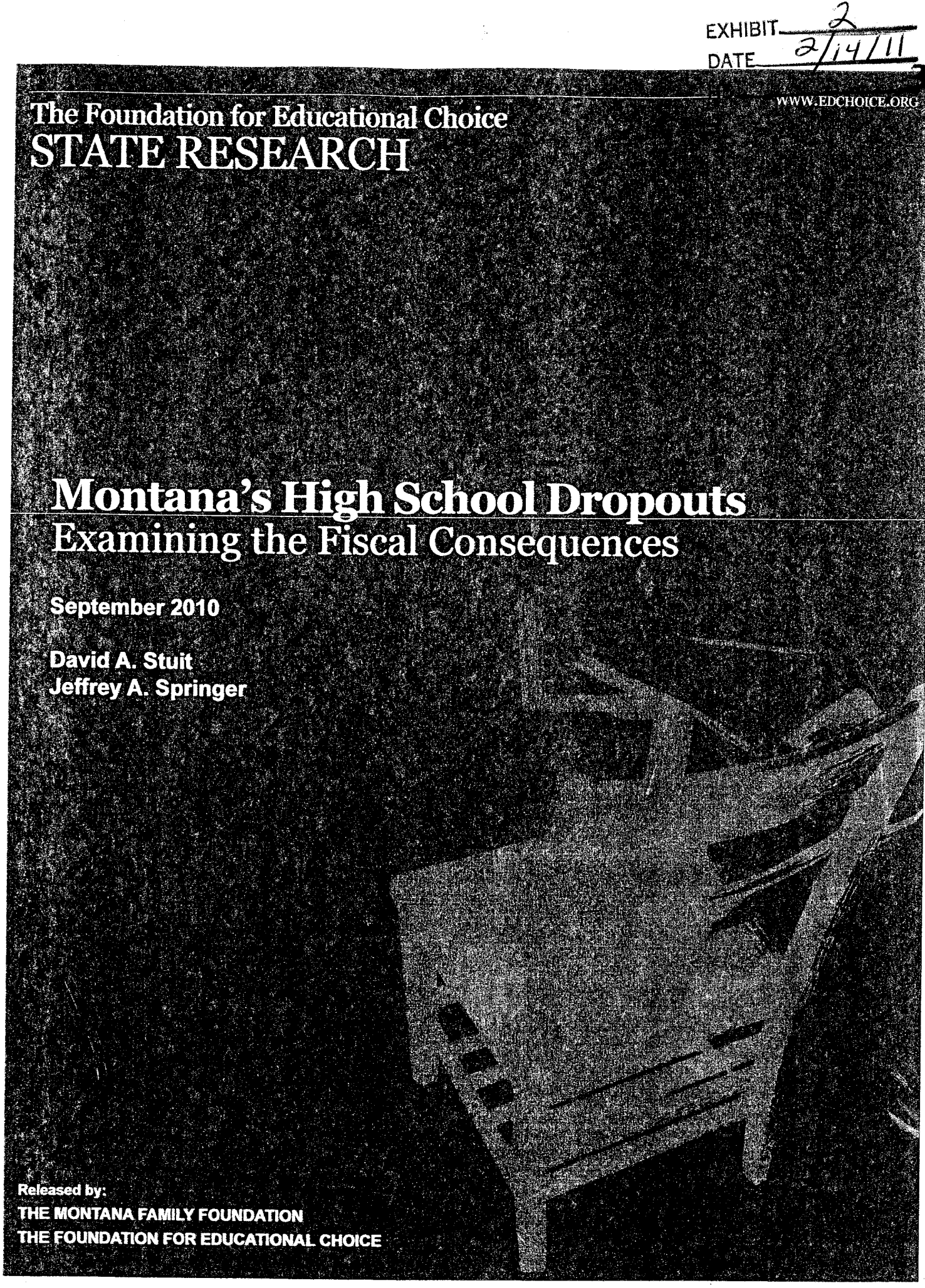

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Our authors take full responsibility for research design, data collection, analysis, content and charts, and any unintentional errors or misrepresentations. They welcome any and all questions related to methods and findings.

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Executive Summary

This report analyzes the economic and social costs of the high school dropout problem in Montana from the perspective of a state taxpayer. The majority of our analysis considers the consequences of this problem in terms of labor market, tax revenue, and public service costs. In quantifying these costs, we seek to inform public policy, estimate the benefits of addressing the problem, and engage state citizenry in the problem's remedy.

The individual and societal costs associated with dropping out of high school in Montana are profound, with particular implications for the state's American Indian student population. That said, the potential benefits from reducing the dropout rate are equally profound. Our analysis of these costs and benefits reveals the following findings.

Key findings include:

- According to the Montana Office of Public Instruction (MOPI), 1,989 students, or 16.1% of the entire class of 2008, dropped out of high school. The state's dropout and graduation rates have not improved since 2002-03.
- Dropout statistics for Montana's American Indian students are alarming. Only 63% of American Indians in the class of 2008 graduated high school on time.
- On average, Montana high school dropouts work close to eight fewer weeks per year than those whose highest degree is a high school diploma or GED. Almost 30% of high school dropouts in the state meet the federal definition of low-income, which is twice the rate of high school graduates. Our wage equation finds that Montana high school graduates on average earn 22% more than high school dropouts after controlling for differences in age, gender, and race. Those with some college earn 27% more and those with a bachelor's degree or higher earn 66% more.
- In extrapolating the annual costs of dropouts to Montana's economy, we estimate that the average high school dropout is earning $5,868 less per year than they would if they had graduated. The total cost to Montana's economy that results from these reduced taxable earnings amounts to $216 million annually. To put this figure in perspective, the state's total personal income generated by its Agriculture, Forestry, and Fishing industries in 2008 was $317 million.
- When comparing the average Medicaid subsidies of a high school dropout to the average of an expected high school graduate, we arrive at an estimated increase in annual costs of $616 per dropout. Accordingly, the total annual Medicaid fiscal impact of Montana's dropouts amounts to approximately $23 million. Over the course of a lifetime, dropouts will require close to $25,000 in present value Medicaid subsidies.

- Using the findings of a prior econometric study on the causal relationship of high school graduation to the likelihood of incarceration, we estimate the average annual incarceration costs of Montana's 36,788 dropouts would decline by $268 per person had they graduated from high school. This represents a potential cost savings of $9.85 million.
- We estimate that each prevented dropout will result in $32,402 benefits to the state over that individual's lifetime. By permanently cutting the dropout rate in half, each class of new high school graduates will yield over $32 million in direct gross economic benefits to the state. By completely eliminating dropouts, the state stands to save $65 million annually.

Introduction

An Economic Perspective on High School Dropouts

The consequences of dropping out of high school to an individual's economic and social well-being are profound. Social scientists have repeatedly demonstrated that dropouts earn less income, suffer more joblessness, and tend more to criminality, poor health, and public dependency than high school graduates.[1] Our nation's minorities continue to bear these costs at a disproportionate rate. As economic globalization continues to shrink the supply of unskilled jobs available to dropouts, we can expect these trends to grow more severe.

In addition to the private costs incurred by individuals, inadequately educated individuals are a major fiscal burden to local, state, and national economies. They contribute less tax revenue while also commanding more public assistance and criminal justice resources.[2] Levin and colleagues estimate that a 50 percent reduction in the current cohort of approximately 700,000 20-year-old dropouts would enable the federal government to recover $45 billion in tax revenues and reduced costs associated with public health, crime and justice, and welfare.[3] These alarming statistics make it clear that addressing the dropout crisis promises not only to improve the well-being of our fellow citizens, but also to improve economic productivity and reduce government costs.

This report focuses on the economic costs of Montana's high school dropouts from the perspective of a Montana state taxpayer. We center our analysis on the consequences of high school dropouts that directly or indirectly affect the state's labor market, tax revenue, and public service costs. Quantifying the economic costs of high school dropouts is useful for several reasons. It provides an important financial context to current education policymaking. It lays out the potential economic benefits that stand to be gained by aggressively combating the dropout problem as well as the real costs that taxpayers will continue to bear by maintaining the status quo. These are important data for policymakers to consider when weighing the economic and political costs of various education reforms. Additionally, illustrating that every additional Montana dropout has an indirect economic impact on all Montana residents may be an effective way to engage more citizens in reform.

Organization of the Report

The remainder of this report is devoted to estimating the economic and social costs of the dropout problem in Montana. The next section describes the data and methods used to illustrate Montana's dropout rates and its economic consequences. We then report on trends in Montana's dropout rate, compare these trends to regional and national averages, and examine differences in these trends by race. Thereafter we estimate the economic costs of high school dropouts to individuals and the state in terms of personal income, state tax revenue, public health, and incarceration.

Data and Methods

Estimating the relationship of education to economic outcomes

The methods and data sources used in this report are informed by the extensive work of economists Henry M. Levin, Clive Belfield, and Cecilia Rouse.[4] Their standard methodological approach to estimating the relationship of schooling to earnings (and other economic outcomes) employs cross-sectional national survey data. Specifically, they compare the distribution of earnings over age groups with different levels of education and then use these differences in earnings to approximate the lifetime benefits accrued by additional schooling or high school graduation. This approach assumes that differences in earnings between high school graduates and dropouts are due to their levels of schooling, and not to other factors, such as innate ability or family background. While there is no guarantee this simple method yields unbiased estimates of the causal effect of schooling on economic outcomes, a substantial body of empirical evidence suggests it provides a reasonable approximation. Rouse conducted a comprehensive review of the economic literature on the causal effect of schooling, and concluded: "This literature has led many to believe that the overall cross-sectional estimate of the economic value of education is likely quite close to the estimate one would generate from the ideal experiment."[5]

U.S. Census Bureau's Current Population Survey – March Supplement (2006 to 2009)

The data used in this report are drawn from the U.S. Census Bureau's Current Population Survey (CPS), particularly the CPS March supplement. The CPS is administered monthly by the U.S. Census

Bureau to over 50,000 U.S. households. CPS respondents are asked questions about their employment, earnings, educational attainment, and demographic characteristics (e.g., age, sex, and race). The CPS March supplement includes information on individuals' total labor market earnings for the previous calendar year, which is essential for estimating annual costs and benefits associated with educational attainment. The majority of our analysis is limited to annual samples of approximately 1,000 Montana residents between the ages 20 and 65 who are not full-time students. Individual responses are weighted using the final sample weights provided by the U.S. Census Bureau, which allow the sample estimates to generalize to national and state populations.

We use data from 2006 to 2009, which reflect the financial earnings of the prior fiscal years (2005 to 2008, respectively). We employ four years of data for two principal reasons. First, the CPS sample of Montana residents in a given year is small (approximately 1,500 respondents in 900 households); therefore, its relevant statistics are vulnerable to sampling error. By averaging across multiple years we provide more stable estimates of the economic and demographic characteristics of Montana's population. Second, using data from 2006 to 2009 allows better estimates of the economic costs of dropouts in non-recessionary periods, while also speaking to the nation's present economic conditions. Like all states, Montana's economy has felt the effects of the national and global recessions that began in December 2007. Montana's unemployment rate rose 76% from March 2006 to March 2009, moving from 3.3% to 5.8%.[6] The loss of over 13,000 jobs during this period along with the general economic slowdown certainly altered the differences in annual wages and unemployment that one would expect during non-recessionary periods.[7]

Methodological limitations

Readers should consider a few methodological limitations of this analysis. First, in our attempt to estimate the economic costs of dropouts, we do not address the general equilibrium effects of increasing educational attainment. One might expect that an increase in the supply of high school graduates entering the labor market would devalue the return of a high school diploma given an increase in competition for skilled jobs. Belfield however provides an argument as to why these general equilibrium effects may not be strong.[8] He notes that new graduates represent a small fraction of the total labor market. Consequently, a long period of time would have to elapse before the effects of increased

schooling would exert a meaningful impact on the composition of the labor market. Moreover, Belfield points to historical evidence that the income benefits to U.S. high school graduates have risen even though overall education levels increased, suggesting that the economic return of the high school diploma has endured even as the supply of high school graduates in the labor force has increased.

A second limitation is that the March CPS data are drawn from a restricted statistical sample of Montana's population that may not reflect the true number of dropouts in the state. The CPS excludes military and institutionalized individuals—two groups that have disproportionately higher dropout rates. Moreover, it is expected that high school dropouts are under-represented in the sampling frame because they are more likely to be inaccessible for data collection or less likely to answer questions on their financial situation. The under-reporting of dropouts within the sample implies that our estimates of their economic impact are conservative.

A final limitation is that the CPS does not distinguish between high school diplomas and General Equivalency Diplomas (GED). This requires us to assume the economic return to these degrees is the same, which may not be the case as high school diplomas provide more career and education advancement opportunities.

Dropouts in Montana

Table 1 displays the high school graduation rates for Montana's class of 2008. Following federal recommendations, the Montana Office of Public Instruction (MOPI) defines the graduation rate as "the percentage of students who graduate from secondary school with a regular diploma in the standard number of years."[9] According to the MOPI, the official Adequate Yearly Progress (AYP) graduation rate for the class of 2008 was 82.6%, which means 17.4% of the 12,385 students in the class of 2008 failed to graduate high school on time.[10] Of those who did not graduate on time, 1,989 students, or 16.1% of the entire 2008 class, were high school dropouts.